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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,483	09/08/2003	Brian E. Curcio	END920000122US3 (IEN-10-5	7494
26681	7590 04/04/2006		EXAMINER	
DRIGGS, LUCAS, BRUBAKER & HOGG CO. L.P.A. 38500 CHARDON ROAD DEPT. IEN WILLOUGHBY HILLS, OH 44094			OLSEN, ALLAN W	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No. Applicant(s)						
Examiner Art Unit 1763		Application No.	Applicant(s)			
Alian Olson 1763		10/657,483	CURCIO ET AL.			
The MAILING DATE of this communication appears on the cover sheet with the correspondence address ~ Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions or term may be available under the provision of 37 CFR 1:30], in an event, however, may a reply be timely filled. If NO period for reply is specified above, the maximum attention y pariod will apply and will aspine SIX (8) (NONTHS from the mailing data of this communication. Failure to prey which the set or excluded period for reply will be stated. Certain depends for freely the specified by the correct and ANDONED(S 31.9.5.5, § 133). Asy veryly resolved by the tofficial ister than these months after the mailing data of this communication, and the correct of the communication and the correct of the	Office Action Summary	Examiner	Art Unit			
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WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of time may be available under the provided and of 13 CFR 1.18(a). In ne event, however, may a reply be timely flied after 50x (b) MOXPTRS from the mailing date of this communication. Failune to reply white the set or extended period for reply will, by stakes, cause the application to become ABANDORDE 30 U.S. C, § 133). Any very received by the Diffice later than three months after the mailing date of this communication, even if smely field, may reduce any seamed patient time adjustment. See 37 CFR 1.794(b). Status 1) □ Responsive to communication(s) filed on <u>04 January 2006.</u> 2a) □ This action is FINAL. 2b) □ This action is non-final. 3) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4 ○ Claim(s) <u>1-18</u> Is/are pending in the application. 4a) Of the above claim(s) <u>13.14 and 17</u> Is/are withdrawn from consideration. 5 □ Claim(s) is/are allowed. Claim(s) is/are allowed. Claim(s) is/are allowed. Claim(s) is/are allowed. The gradient parts are subject to restriction and/or election requirement. Application Papers 9 □ The specification is objected to by the Examiner. 10 ☑ The drawing(s) filed on <u>08 September 2002</u> is/are: a)☑ accepted or b)□ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abevance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) sobjected to. See 37 CFR 1.121(d). 11)□ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152. Priority under 35 U.S.C. § 119 12)□ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a)□ All b)□ Some * c)□ None of: 1.□ Certified copies of the priority documents have bee		ears on the cover sheet with the c	orrespondence address			
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DETAILED ACTION

Election/Restrictions

Claims 13, 14 and 17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 6, 2005.

Double Patenting

Applicant is advised that should claim 2 be found allowable, claim 11 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 1-5, 7-12, 16 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,376,052 issued to Asai et al. (hereinafter, Asai).

Asia teaches forming a hole through an insulating substrate that has both surfaces covered with conductive copper coating (see figure 2b). Asai teaches dispensing a conductive material into the through hole openings such that the conductive material extends through each conductive copper coating (3 of fig. 2c and 5 of fig 2 e). Asai teaches removing a portion of the conductive copper coating to allow a nub of the conductive material to extend above the substrate (see figure 3b). Asai teaches the conductive material 5 may comprise a filled polymer, for example a filled thermoset or a filled epoxy (column 9, liner 1-34). Asai teaches plating the sidewalls of the through hole with conductive material 3 before dispensing conductive material 5 into the hole (figure 2c). Asai teaches removing the conductive copper coating by etching (column 15, lines 22-40). Asai teaches the substrate is glass-reinforced epoxy (column 13, lines 19-24). Asai teaches removing excess conductive material by chemical polishing (column 38, lines 5-8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asai.

The above noted teaching of Asai is herein relied upon. Additionally, it is noted that Asai teaches using a squeegee to fill the through holes with resin.

Asai does not teach filling the holes with resin in multiple passes. Asai does not teach curing the epoxy to between 20% and 80%.

It would have been obvious to one skilled in the art to cure the extent necessary such that the resulting viscosity would enable the process of filling of the through hole with the conductive material. It would have been obvious to one skilled in the art to uses as many passes as necessary to fill the through holes with the epoxy.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allan Olsen
Primary Examiner
Art Unit 1763